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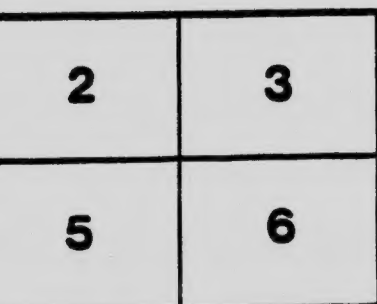
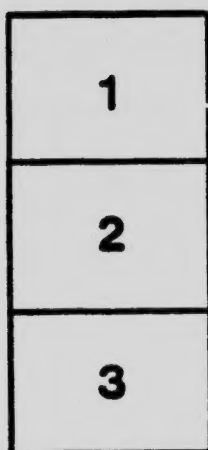
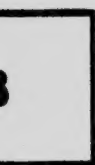
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Can. Spencer, Joseph W. W.
Pam.

"EVOLUTION OF THE FALLS OF NIAGARA"

by Dr. J. W. SPENCER

**Expressions of Scientific Men who have written on the Falls
or subjects bearing upon them.**

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The late Prof. J. P. Lesley, (Director of the Geological Survey of Pennsylvania, and Father of the Science of Topography) was the first to inspire the Author, by his enthusiastic interest, on learning of the Author's observations, showing that Niagara was a modern river, (1881). Prof. Lesley urged for immediate publication, and on the appearance of the paper he referred to it as follows: "It is well, now that Dr. Spencer has disembarassed us of the chief difficulty of our best preserved water system of the North, to remind the admirers of his great discovery", etc. (Report Q 4, Geol. Surv. Pa.) On these researches being extended, Prof. Lesley again wrote: "It is a page in the new history, inaugurated in a great measure by yourself, and involving some of the most important points * * * and in fact must throw light upon the whole subject of elevation and subsidence, as applicable to the entire area of the United States" (Feb. 11, 1888). This prophesy concerning the great scope of the Author's investigations has been fulfilled, not only by him in America, but also by Prof. Edward Hull of England and Dr. Fridtjof Nansen of Norway. Later, Prof. Lesley wrote of Dr. Spencer that he was "not only a well-proved investigator, but an excellent publisher of discoveries", referring to certain ones, which he called "very remarkable".

From this date many contributions by the Author appeared in the leading scientific journals. Some of these were declared epoch-making by men, who themselves were great investigators. The work then done gave the nomenclature, by right of priority, to many of the new features discovered in the Lake region. On request of the late Hon. Andrew H. Green

(Father of Greater New York), these papers were published in book form, by the Commission of the State Reservation at Niagara, in 1895. Dr. E. D. Cope (Professor, University of Pennsylvania, President of the American Association for the Advancement of Science, Editor of *American Naturalist*), wrote: "I have read your book on the history of the Great Lakes and of Niagara Falls. * * * I have no hesitation in saying that your work is one of the most important in Geological Science that has been produced in this or any other country, as original research. It furnishes a standard of estimation of Post Glacial history for this continent, which must always be referred to in all questions relating to the antiquity of man, as well as those relating to the distribution of land and water (Oct. 29, 1895). Prof. Cope's biographers classify him as one of the few of the greatest Naturalists, and perhaps no man in America has added so much to the wealth of knowledge from his own researches.

The late Mr. Green, above mentioned, was the originator of the International Waterway Commission, for the preservation of Niagara, and it had been his intention to have Dr. Spencer appointed one of the Commissioners, with the investigation of Niagara intrusted to him.

Dr. Robert Bell, Head of the Geological Survey of Canada, commissioned Dr. Spencer, in June 1905, to extend his former investigations on Niagara Falls and prepare "a monograph on the whole subject", "as you understand all about the subject, and know better than any one else the work that may be essential".

On the appearance of this monograph, *The Toronto Globe* (Liberal) under date of Feb. 1908, gives a somewhat lengthy review of the contents of the book, calling especial attention to the question of the effects of power diversion on the Falls, and says "Dr. Spencer has made an excellent contribution to the literature, dealing with this important phase of the International waterway question, and the problem of Power diversion. He has also succeeded in making a purely scientific dissertation readable and highly interesting." "The high professional standing of the Author attests the value of his interpretation of the records traced by nature." *The Mail and Empire of Toronto* (Conservative, April 17, 1908,) gives a still longer review, which is highly appreciative and strongly recommends the book.

The Ottawa Free Press of April 4th, 1908 says:—The well written and well illustrated volume referred to is the outcome of Dr. Spencer's labours, and a most interesting book it is, being

without doubt the most complete and satisfactory work yet written on the Falls of Niagara. Its scope is well indicated in the sub-title, "Their Evolution and varying Relations to the Great Lakes; Characteristics of the Power, and the Effects of its Diversion."

Mgr. Laflamme, Professor of Geology of Laval University, Quebec, who has written a report on the Falls says of the book:—

"A masterly work. It is an inexhaustible mine of all kinds of information. Those who would study this interesting problem should commence by reading your book."

Dr. A. P. Coleman, Professor of Geology of Toronto University, who has extended some of the Author's earlier investigations; says:—

"I have read most of it with the greatest interest and congratulate you on having produced so important a work on so attractive a region. Many of your suggestions are quite revolutionary and perhaps may encounter opposition, but most of your points seem to me to be well supported by the arguments marshalled in favor of them"

James Wilson, C. E., Superintendent of the Falls' Park, on the Canadian side, writes:—

"I am of the opinion that you have made by far the most pains-taking and reliable investigation into the whole subject that has yet been attempted." Mr Wilson, now Park Commissioner in Toronto, was for nearly twenty years at the Falls, knowing the changes in the Falls and what had been done on them better than any man.

Prof. H. L. Fairchild, until recently Secretary of the Geological Society of America, who has made extensive researches on correlated subjects, writes of the book:—

"It is all right, except that it fails to recognize the only efficient cause of the level water" (a secondary question of explanation, not of facts affecting Niagara, but involving many problems in another field of study and intentionally omitted for want of time.) "But the book is excellent."

Mr. F. B. Taylor, whose extensive investigations on the geological problems give him a first place and his opinions most weight, states:

"Your work on Niagara so admirable otherwise" (than the omission mentioned by Prof. Fairchild) "is worthy to stand as a monument of a life's work."

J. W. Goldthwait, Professor of Geology, Northwestern University (near Chicago), who has recently written extended contributions on correlated subjects for the Geological Surveys of Illinois and Wisconsin, and writes expressing his appreciation of the Author's former work (which was almost the starting point in the modern physics of Niagara Falls) as follows:—

"Many times * * * I have referred to your earlier papers" finding "the precision of the detailed measurements of yours around Georgian Bay, and the accurate character of your conclusions from them." "I shall want to quote your conclusions regarding the future of Niagara."

Professor George Frederick Wright (Oberlin College), Author of the "Ice Age in North America," who has written several papers bearing on Niagara, writes:—

"You have made a marvelous collection of facts, which will be a basis for study for all time to come. I congratulate you on the thoroughness, with which you have done the work, and for the completeness, with which you are able to present the facts, both in the text and in the illustrations. You certainly have vindicated your claim to be the pioneer in the correct line of investigating the problems presented by this remarkable region."

Prof. C. H. Hitchcock, who as State Geologist prepared the great reports of New Hampshire, one of the two founders of the Geological Society of America, and who has written on Niagara Falls, says:—

"I thank you for * * * explaining certain points in the history of Niagara. It is very evident that the old notions of the history must be relegated to the limbo of forgetfulness."

Thomas Russel, Hydrographic Officer, who made the investigations of the physics of the great rivers of the Lake region, for the Report of the Chief of Engineers of the U. S. Army, writes:—

"I congratulate you on your great book on Niagara. It is highly and thoroughly appreciated. It is something that will have to be consulted by those who really want to know about the subject. It is a thing that will last and be good for hundreds of years."

George W. Littlehales, Hydrographic Engineer of the U. S. Navy, and author of many physical papers, who previously knew of the character of the physical investigations on Niagara, says:—

"I knew that I was to look for something magnificent, but indeed my expectations are surpassed, and I have not looked at this splendid book without feeling proud of my acquaintance with you."

H. H. Barroll, Commander, U. S. Navy, (Hydrographic Office) writes:—

"I wish to express to you my great appreciation of your success in having handled such an intricate subject with the result of giving to the public such a concise, complete, and thorough book. As one who has a somewhat expert knowledge of the physics of the case, I also wish to congratulate you upon the clearness of style, and excellent literature, which, while following the professionally scientific data to definite conclusions still results in a work which is clearly comprehended by the laymen as well as the geological expert."

Dr. S. S. Laws, retired President of the University of Missouri, a man of wide learning and a creative genius, who has long been familiar with the Author's works, expresses himself as follows:—

"I have now read your book and congratulate the Survey on such an epoch-making contribution in the line of succession to Logan, Sterry-Hunt and other great men, who have made Canadian Geology famous the world over * * * and your work maintains the standard of your distinguished predecessors * * * Almost every chapter is characterized by new discoveries. The secret of these discoveries seems to have been the application of precise measurements and calculation in place of speculation * * * involving as it does terrestrial physics on the one hand, and on the other industrial application of the power of Niagara, and its bearing on the Lake commerce and on the preservation of the Great Cataract. * * * A few simple laws cover the details of this most interesting subject. * * * The style of your book is lucid and felicitous."

J. C. Branner, Professor of Leland University, of California, a long distance away, and not directly connected with this line of work, wrote:—

"It is evidently a monumental and standard work, I shall quote it in my new Syllabus on Geology."

J. Horace McFarland, President of the American Civic Association, in working for the preservation of Niagara, writes:—

"I take the first opportunity to express my great admiration of its completeness, and my great gratification at your general conclusions. I believe this volume is certain to be extremely influential toward the general proposition of preserving Niagara Falls."

Prof. Elmer Gates, (Elmer Gates Laboratory, near Washington), a man of great genius, and an experimentalist in Physics and Biology, says:—

"After re-reading the work * * * " your book on Niagara belongs to the same class as those that were written by Newton, Faraday and Darwin, being a mine of facts, obtained by studying and describing natural phenomena, and not a mere compilation and discussion. It is the product of a direct and first-hand investigation of Nature, brought with a great wealth of invaluable detail to a satisfactory solution. * * * Your book is a milepost on the highway of Science."

